tive copper were found in one, with fragments of bone. In others the bones had entirely disappeared. There was no pottery, but well-made, polished and chipped stone implements (as arrow-points, knives, celts, gouges and pendants) were abundant. Iron pyrites for 'firestones' and red ochre for paint were quite common.

Both Dr. Willoughby and Professor Putnam (who contributes a prefatory note) express a doubt that these were Algonquian graves. They suggest the Beothucs of Newfoundland as their possible constructors.

GEOGRAPHY AND ANTHROPOLOGY.

THIS autumn the Geographical Institute of Brussels, a branch of the 'Université Nouvelle,' begins its courses of instruction. It offers a three years' course in geography and expects to grant a diploma.

It is interesting to note the position assigned to anthropology in this course. In the first year it divides with biology one hour a week; in the second and third year it has one hour a week to itself, and in the third year ethnography has also an hour; these out of about fifteen instruction hours weekly. The professor of this course is not named in the preliminary announcement.

This is perhaps as much as can be expected at present; but it seems still remote from the definition of geography given by Dr. Hugh R. Mill some years ago—'the description of the earth in relation to man.'

D. G. BRINTON.
UNIVERSITY OF PENNSYLVANIA.

SCIENTIFIC NOTES AND NEWS.

A NATIONAL PHYSICAL LABORATORY FOR GREAT BRITAIN.

THE report of the committee appointed by the Treasury to consider the desirability of establishing a national physical laboratory was issued on October 4th. The Treasury minute appointing the committee was dated August 3, 1897, and was as follows:

To consider and report upon the desirability of establishing a national physical laboratory for the testing and verification of instruments for physical investigation; for the construction and preservation of standards of measurement, and for the systematic determination of physical constants and numerical *data* useful for scientific and industrial purposes; and to report whether the work of such an institution, if established, could be associated with any testing or standardizing work already performed wholly or partly at the public cost.

The committee consisted of Lord Rayleigh (chairman), Sir Courtenay Boyle, Sir Andrew Noble, Sir John Wolfe Barry and Messrs. W. C. Roberts-Austen, Robert Chalmers, A. W. Rücker, Alexander Siemens and T. E. Thorpe.

The committee review the existing institutions in Great Britain and state:

After consideration of the evidence the committee have come to the conclusion that an institution should be established for standardizing and verifying instruments, for testing materials, and for the determination of physical constants. Work useful both to science and industry could therein be performed for which no adequate provision is at present made, either in this country or at the Bureau International des Poids et Mesures. Such work could not, or, at all events, in all probability would not, be undertaken by individual workers or by institutions primarily devoted to education. In the opinion of the committee the proposed institution should be established at the national expense on lines similar to, though not at present on the scale of, the Physikalisch-technische Reichsanstalt.

The conclusions of the committee are as follows:

1. That a public institution should be founded for standardizing and verifying instruments, for testing materials, and for the determination of physical constants.

2. That the institution should be established by extending the Kew Observatory in the Old Deer Park, Richmond, and that the scheme should include the improvement of the existing buildings, and the erection of new buildings at some distance from the present observatory.

3. That the Royal Society should be invited to control the proposed institution, and to nominate a governing body, on which commercial interests should be represented, the choice of the members of such body not being confined to Fellows of the Society.

4. That the Permanent Secretary of the Board of Trade should be an *ex-officio* member of the governing body; and that such body should be consulted by the Standards Office and the Electrical Standardizing Department of the Board of Trade upon difficult questions that may arise from time to time or as to proposed modifications or developments.

THE FRANKLIN INSTITUTE.

THE Franklin Institute, Philadelphia, founded in 1824, makes an appeal for an increased endowment. The present endowment is small, and although the membership of nearly 2,000 contributes an annual addition to the income, this is not sufficient to carry on the work. The membership is largely composed of artisans, and the dues ($8 per year) are properly low, so that the benefits of the Institute may reach as many as possible. A fund of $350,000 is needed, of which it is hoped that at least $100,000 may be provided by the present effort.

The Franklin Institute is able to point to the following record of achievements in behalf of science and its applications:

The Institute held its first exhibition of American manufacturers in October, 1824, and subsequently twenty-eight exhibitions. It instituted the movement that culminated in the Centennial Exhibition of 1876. Its International Electrical Exhibition in 1884 contributed the impulse which has resulted in bringing the United States to the leading position in the utilization of electricity. It founded the School of Design for Women. It established the first high school in Philadelphia. It established a uniform system of machine screw threads. It made tests of the strength of materials for the United States government. It investigated the causes of the explosions of steam boilers, at the request of the Treasury Department. It was the pioneer in making and recording systematically meteorological observations, culminating in the establishment of the Weather Bureau. The publication in its journal of abstracts of specifications and claims of United States patents, from 1826 to 1843, now affords the only available reference to this information, the government having failed to publish them prior to 1843. It aided in founding the Pennsylvania Museum and School of Industrial Art, by lending a helping hand and sheltering roof in its infancy. It investigated the various forms of water wheels for giving economical value to water power. The law of Pennsylvania relating to our system of weights and measures was enacted as the result of the report made by the Institute at the request of the Legislature of the State. In response to a request of City Councils, it nominated an expert commission to report on a future water supply for Philadelphia. In response to a request by the Board of Health, it has recently investigated and reported upon the subject of the abatement of the 'Smoke Nuisance' in Philadelphia. Its journal, published continuously since 1826, now in its 146th volume, constitutes an invaluable record of the arts and manufactures, especially as developed in the United States. The Institute keeps constantly in touch with science as applied to the useful arts, by its lectures and the papers read at its meetings, and those of its Chemical, Electrical and Mining and Metallurgical Sections. Its drawing school, established in 1824, devoted to mechanical and architectural drawing, has been maintained uninterruptedly for seventy-five years. Its library is one of the most complete scientific and technical libraries in the world and is open to the public for reference from 10 a. m. to 3 p. m., to members from 9 a. m. to 10 p. m.

GENERAL.

M. HENRI MOISSAN, Sir William Crookes and Professor J. H. Van't Hoff have been elected honorary members of the American Chemical Society.

THE Harveian Oration before the Royal College of Physicians of London, by Sir Dyce Duckworth, was delivered on October 18th. The Bradshaw Lecture will be delivered by Dr. W. M. Ord on Thursday, November 10th, his subject being 'Myxœdema and allied Conditions.' The Goulstonian Lectures will be given next year by Dr. G. R. Murray, of Newcastle, who has taken for his subject the 'Pathology of the Thyroid Gland.' The Lumleian Lectures for next year will be given by Dr. Samuel Gee. The Croonian Lecturer for 1899 is Professor Bradbury, of Cambridge, and for 1900 Dr. F. W. Mott, F. R. S.

PROFESSOR VOLNEY M. SPALDING (botany),

Professor Alexander Ziwet (mathematics), Professor George W. Patterson (physics) and Professor Dean C. Worcester (zoology), of the University of Michigan, have been granted leave of absence for the present academic year.

Professor E. B. Wilson, of Columbia University, has recovered from the serious illness from which he suffered during the summer, but will take advantage of the Sabbatical year allowed by Columbia University to spend next year in travel and research abroad.

Dr. F. Morley has resumed the chair of mathematics in Haverford College after a year's leave of absence. While abroad he was given the D. Sc. by Cambridge University.

Professor Israel C. Russell, of the department of geology of the University of Michigan, spent the three months' summer vacation conducting a geological survey for the United States government over the northern portion of the Cascade Mountains. The greater part of the work was in Washington State and extended from the Northern Pacific Railroad to the Canadian boundary, crossing the mountains several times. Among the places of interest visited was Glacier Peak, the height of which was verified.

Professor James A. Craig, of the University of Michigan, spent the summer vacation in London at work in the British Museum, on the astrological-astronomical tablets of the Kujundjik (Nineveh) collection known as the Illumination of Bêl. This is the most important series of unedited texts in the British Museum and by far the most important in many respects to be found in any of the collections extant. Professor Craig has now completed all the texts of the series, which numbers about 130 tablets. His manuscript is already in the press with Die Hinrichs'sche Buchhandlung, Leipzig.

Dr. W. P. Wilson, Director of the Philadelphia Commercial Museums, has arranged to give a course of lectures at the Museums on commercial geography before the Philadelphia Normal and High School students.

The United States Civil Service Commission announces that on October 25, 1898, examination will be held for the position of assistant, editing, abstracting, proof-reading and indexing, in the Department of Agriculture, at a salary of $1,200 per annum. The scope of this examination may be found in Section 67 of the Manual supplied by the Commission.

The fifth annual exhibition of the department of entomology of the Brooklyn Institute was opened on October 8th at the museum building, and will continue through the month. It includes rare specimens of moths and butterflies, filling some forty-eight cases, most of which are loaned from the collection of the late Mr. Berthold Neumögen. This collection, containing nearly 120,000 specimens made at a cost of $75,000, is deposited in the Brooklyn Museum.

There is a serious epidemic of yellow fever in Louisiana and Mississippi, more than 1,000 cases having occurred. The usual panic accompaning epidemics of yellow fever in the South has followed, and it appears that the patients are not properly cared for. Still the mortality is low, only 69 deaths having been reported.

At the Boston meeting of the American Chemical Society the Secretary reported the membership to be 1,318, an increase of 162 since its annual meeting in December last. Professor Edgar F. Smith was elected a member of the Committee on Papers and Publication, and a committee was appointed to consider an increase in the membership of this Committee, so that it shall include special representatives of each of the important departments of chemistry. It was decided to remove the library to Havemeyer Hall, Columbia University, and Mr. M. T. Bogert was elected Librarian.

The American Ornithologists' Union will hold its sixteenth annual meeting at Washington, D. C., beginning on November 14th. Titles of papers should be forwarded to the Secretary, Mr. John H. Sage, Portland, Conn., not later than November 6th.

A convention of Weather Bureau officials was held at Omaha on October 12th and 13th. A number of interesting papers were presented, including one on the 'West Indian Hurricane Service,' by Professor Willis L. Moore, Chief of the U. S. Weather Bureau.

THE second Huxley lecture given by Professor Rudolf Virchow at the opening of the Charing Cross Hospital, on October 3d, entitled 'Recent Advances in Science and their bearing on Medicine and Surgery,' was of great interest both to men of science and physicians. If space permit it will be republished later in this JOURNAL. Professor Virchow was given a complimentary dinner on October 5th, the chair being occupied by Lord Lister. Speeches were made by Lord Lister and Professor Virchow, as also by Sir W. Broadbent, Surgeon-General Jameson, Sir Samuel Wilkes, Sir William MacCormack, Professor Chiene and Sir William Turner. Professor Virchow was expecting to be present at the ceremonies in connection with the opening of the Thompson-Yates Laboratory at Liverpool on October 8th.

THE following details regarding the life of Professor Virchow, taken from *The British Medical Journal*, may be of interest: Rudolph Ludwig Karl Virchow, to give him his full complement of names, was born on October 13, 1821, at Schivelbein, a small town in Farther Pomerania. He received his early education in the gymnasium of Cöslin, where he was thoroughly grounded in the Latin and Greek languages, and where also he learnt Hebrew so well that he took it up as a voluntary subject at his *Abiturientenexamen*, which he passed in 1839. In the same year he entered the Friedrich Wilhelm Institute, for the training of army surgeons, in Berlin. At this medico-military academy—from which have come at different times many men of the highest distinction, such as Nothnagel, Leyden, Hueppe, Loeffler, Gaertner, Schmidt-Rimpler, Fraentzel and others—Virchow had Hermann von Helmholtz among his fellow students. Among his teachers were Johannes Müller, Schoenlein, Dieffenbach and Casper. The teacher who most influenced him was Müller, who, in Virchow's own words, 'founded no school in the sense of dogmas, for he taught none, but only in the sense of method.' Virchow took his Doctor's degree in 1843, his inaugural thesis bearing the title 'De Rheumate præsertim Cornæ.' Soon after graduation he was appointed Prosector in the Charité Hospital where he laid the foundations of his future fame as a pathologist. In 1848 his name first began *volitare per ora* in consequence of his being sent to investigate a severe epidemic of typhus in Upper Silesia. The report which Virchow presented on that occasion was not only a masterpiece of scientific investigation, but marked him out as a man of the most enlightened philanthropy. What he saw in the course of that inquiry converted him to Radicalism, a political creed which he has ever since professed. He insisted strongly on the necessity of social as well as sanitary reform for the prevention of evils such as came under his notice in Silesia. On his returning to Berlin, while continuing to add new truths to the new science of pathology which he was creating, he was very active as a reformer of society in general and of his own profession in particular. In conjunction with a kindred spirit he founded a journal entitled *Die medicinische Reform*, in which the wrongs and grievances of the profession in Germany were discussed in a remarkably outspoken manner. This periodical ceased to exist on Dr. Virchow being called to occupy the chair of pathology in the University of Würzburg, in 1849. At Würzburg he remained seven years, his fame meanwhile spreading over the whole world, so that when a vacancy in the corresponding chair at Berlin occurred, in 1856, he was appointed to it in the teeth of strong political opposition. It would be out of place here to attempt to give even a summary of his scientific achievements. It is sufficient to recall that his great work, 'Die Cellularpathologie in ihrer Begründung auf physiologische und pathologische Gewebelehre,' began to appear in 1855. In that work the far-reaching doctrine *Omnis cellula a cellulâ* was enunciated, and from this 'cell' has come the long and splendid series of its author's later contributions to knowledge. In 1858 appeared Virchow's other great work, 'Die krankhaften Geschwülste.' Reference should also be made to his famous *Archiv*, which a year or two ago celebrated the jubilee of its foundation, and which still stands in the front rank of publications devoted entirely to scientific medicine. A list of his writings would occupy several pages of this JOURNAL. Among Virchow's great works may be counted his famous museum, which, when

he first became professor in Berlin, numbered only some 1,500 specimens. But Virchow is not merely the greatest of living pathologists; he has for half a century been equally prominent in his own country as a politician. He has for many years been the leader of the Opposition in the German Reichsrath, and between thirty and forty years ago he had the honor of being challenged by Prince Bismarck. It is much to Virchow's honor that he had the courage to decline to risk a life so valuable for science and humanity in a foolish duel. Even pathology and politics do not exhaust the intellectual activities of this many-sided man. He is President of the German Geographical Society, in the work of which he takes the keenest interest. He is also justly famous as an anthropologist and archæologist. It may be added that in his writings he shows a feeling for literary form rare in medical authors, and especially rare in German professors. His lucidity of style and the logical order in which he unfolds his thoughts make his works a pleasure to read.

Dr. Woodward, Health Officer of the District of Columbia, has submitted to the Commissioners his estimates for appropriation, the sum being placed at $160,540. The estimates include $5,000 for the establishment and maintenance of a bacteriological laboratory.

Good work is being done by the Paris municipal bacteriological laboratory, says the New York *Medical Record*. This laboratory for the diagnosis of contagious affections was created by the Municipal Council in 1895, and is open to the public every day in the year from eight o'clock in the morning until eight in the evening, including Sundays and holidays; moreover, the necessary articles are given to doctors who ask for them for the bacteriological diagnosis of diphtheria, tuberculosis and contagious affections of which the germs are known. The results of the analyses are sent directly to the doctors, at longest twenty-four hours after reception of the pathogenic products at the laboratory. These results can be sent by telegraph if desired and at the expense of the doctor, but the examination and diagnosis are absolutely gratis. The laboratory received in August, 1898, forty-eight products suspected to be tuberculous, in which the bacillus of Koch was discovered sixteen times.

UNIVERSITY AND EDUCATIONAL NEWS.

The Board of Education of New York City has presented to the Board of Estimate and Apportionment a request for over $12,000,000 for current expenses and about $10,000,000 for new buildings for the year 1899. The estimates for current expenses are $3,000,000 more than the appropriation for the present year, the additional sum being intended chiefly for the increase of salaries.

The will of the late John D. W. Joy, of Boston, gives $30,000 to Tufts College, the bequest to take effect on the death of his widow.

A new class of honorary fellowships has been created this year at Cornell University. Those holding the Ph.D. degree from any institution may obtain these fellowships, which carry no emolument, but allow free tuition, the use of the library, etc.

Dr. Simon Flexner, associate professor of pathology at the Johns Hopkins University, has been appointed professor of pathological anatomy.

The following promotions and new appointments have been made at the Massachusetts Institute of Technology: Henry P. Talbot, to be professor of analytical chemistry; H. O. Hoffman, professor of mining and metallurgy; D. P. Bartlett, associate professor of mathematics; R. R. Lawrence, instructor in physics; and as assistants: J. C. Coffin, H. W. Smith and M. D. Thompson, in physics; and G. M. Holman, in biology.

The following instructors have been appointed in the University of Michigan: Lawrence Bigelow, in chemistry; James Pollock, Hamilton Timberlake and Julia W. Snow, in botany; Augustus Trowbridge, in physics; W. H. Butts and A. W. Whiting, in mathematics, and Archibald Campbell, in organic chemistry.

Dr. Martin B. Stubbs, of Haverford College and Johns Hopkins University, has been appointed assistant in chemistry and physics in Haverford College.

The British Education Department has issued